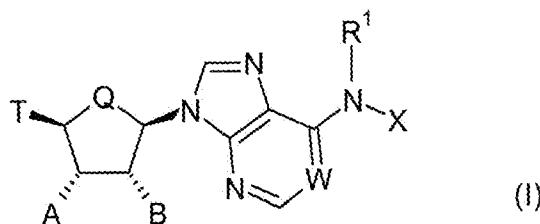


Claims

1. (currently amended) A compound according to the general formula (I)



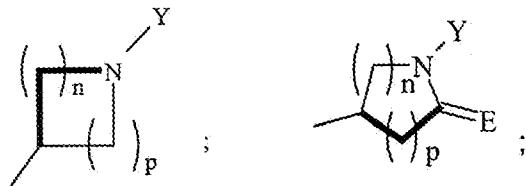
wherein;

W is N[[,]] or $N \rightarrow O$, or CH ;

Q is CH_2 or O ;

R^1 is selected from the group consisting of hydrogen, C_1 - C_{10} -alkyl, allyl, 2-methylallyl, 2-but enyl and C_1 - C_{10} -cycloalkyl;

X is selected from the group consisting of



wherein n and p are independently 0, 1, 2, or 3, provided that $n + p$ is at least 1;

and unsubstituted and at least monosubstituted C₁-C₁₀-alkylene-Y, C₁₁-C₁₂-C₁₀-alkenylene-Y, C₃-C₁₀-cycloalkylene-Y and C₃-C₁₀-cycloalkenylene-Y, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, CF₃, C₁-C₆-alkyl and C₁-C₆-alkoxy;

E is O or S;

Y is selected from the group consisting of hydrogen; and unsubstituted and at least monosubstituted C₁-C₁₀-alkyl, aryl, heterocyclyl, aryl-(C₁-C₁₀-alkylene)- and heterocyclyl-(C₁-C₁₀-alkylene), the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, aryl, heterocyclyl, C₁-C₆-alkoxy, NH₂, (C₁-C₆-alkyl)amino,

di(C₁-C₆-alkyl)amino, C₁-C₆-alkoxy-(C₁-C₆-alkylene)-, nitro, carboxy, carbalkoxy, carboxy-(C₁-C₆-alkylene)-, carbalkoxy-(C₁-C₆-alkylene)-, hydroxy, hydroxy-(C₁-C₆-alkylene)-, mercapto, (C₁-C₆-alkyl)thio, mercapto-(C₁-C₆-alkylene)-, C₁-C₆-alkyl substituted by at least one halogen, (C₁-C₆-alkyl)sulfonyl-, aminosulfonyl-, (C₁-C₆-alkyl)aminosulfonyl-, (C₁-C₆-alkyl)sulfonylamido-, (C₁-C₆-alkyl)sulfonyl-(C₁-C₆-alkylene)amino-, HO₃S-(C₁-C₆-alkylene)-, carbamoyl-(C₁-C₆-alkylene)-, (C₁-C₆-alkyl)-carbamoyl, (C₁-C₆-alkyl)-C(O)O-, (C₁-C₆-alkyl)-CO-, -SO₃H and carbamoyl;

T is a residue selected from the group consisting of C₁-C₁₀-alkyl, C₁-C₁₀-cycloalkyl, aryl-(C₁-C₁₀-alkylene)- and heterocyclyl-(C₁-C₁₀-alkylene), which residues are monosubstituted by halogen or OR₂, and which residues can be optionally substituted by at least one further substituent selected from the group consisting of halogens, pseudohalogens CN, N₃, mercapto, NH₂, nitro, hydroxy, unsubstituted and at least monosubstituted C₁-C₆-alkyl, C₁-C₆-alkoxy, (C₁-C₆-alkyl)amino, (C₁-C₆-alkyl)thio, aryl and heterocyclyl, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, C₁-C₃-alkyl, C₁-C₃-alkoxy and hydroxy;

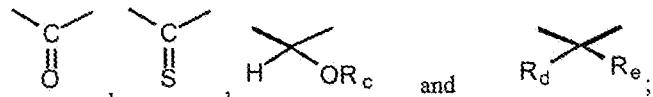
R² is C₁-C₁₀-alkyl substituted by at least one halogen;

A is hydrogen, C₁-C₁₀-alkyl, hydroxy-(C₁-C₁₀-alkylene)-, C₁-C₁₀-alkoxy-(C₁-C₁₀-alkylene)-, or OR';

B is hydrogen, C₁-C₁₀-alkyl, hydroxy-(C₁-C₁₀-alkylene)-, C₁-C₁₀-alkoxy-(C₁-C₁₀-alkylene)-, or OR'';

R' and R'' are independently selected from the group consisting of hydrogen, C₁-C₆-alkyl, aryl-(C₁-C₆-alkylene)-, (C₁-C₆-alkyl)-CO, carbalkoxy, aryl-(C₁-C₆-alkylene)-CO-, and aryl-O-CO-;

when A and B are OR' and OR'', respectively, R' and R'' together may form a substituent selected from the group consisting of



R_C is hydrogen or C₁-C₆-alkyl;

R_d and R_e are independently hydrogen, C₁-C₁₀-alkyl, or together with the carbon atom to which they are attached may form a 1,1-cycloalkyl group;

heterocyclyl is a 4 to 10-membered, mono- or bicyclic heterocycle containing one or more heteroatoms selected from the group consisting of N, O and S;

aryl is phenyl, indan-1-yl, indan-2-yl, naphth-1-yl or naphth-2-yl;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof, or an N-oxide thereof, a hydrate thereof or a solvate thereof;

~~with the proviso that, in case Q is O and Y is hydrogen, X is not C₃-C₆-cycloalkylene or C₃-C₆-cycloalkylene substituted by at least one halogen; in case Q is O and Y is hydrogen, C₁-C₁₀-alkyl or C₁-C₁₀-alkyl substituted by at least one hydroxy, X is not unsubstituted C₁-C₁₀-alkylene; in case Q is O and Y X is 2 pyridin-4-yl ethyl, T is not CF₃OCH₂; in case Q is O and T is methyl monosubstituted by halogen, Y X is not unsubstituted and substituted C₁-C₁₀-alkyl, C₁-C₁₀-alkenyl, 2-phenylethyl or (C₃-C₁₀-cycloalkyl)methyl.~~

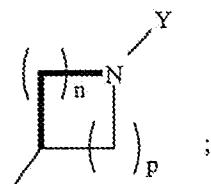
2. (currently amended) A compound according to claim 1, wherein in the formula (I)

W is N;

Q is CH₂;

R¹ is hydrogen or C₁-C₆-alkyl;

X is selected from the group consisting of



and unsubstituted and at least monosubstituted C₁-C₁₀-alkylene-Y and C₃-C₁₀-cycloalkylene-Y, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, CF₃, C₁-C₆-alkyl and C₁-C₆-alkoxy;

n + p is 3 or 4;

Y is selected from the group consisting of hydrogen; and unsubstituted and at least monosubstituted C₁-C₁₀-alkyl, aryl and heterocyclyl, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, C₁-C₆-alkyl, C₁-C₆-alkoxy, NH₂, (C₁-C₆-alkyl)amino, di(C₁-C₆-alkyl)amino, C₁-C₆-alkoxy-(C₁-C₆-alkylene)-, nitro, carboxy, carbalkoxy, hydroxy, hydroxy-(C₁-C₆-alkylene)-, mercapto, (C₁-C₆-alkyl)thio, mercapto-(C₁-C₆-alkylene)-, C₁-C₆-alkyl substituted by at least one halogen, (C₁-C₆-alkyl)sulfonyl-, aminosulfonyl-, (C₁-C₆-alkyl)aminosulfonyl-, (C₁-C₆-alkyl)sulfonylamido-, SO₃H and carbamoyl;

T is C₁-C₁₀-alkyl which is monosubstituted by halogen or OR², and which C₁-C₁₀-alkyl can furthermore be optionally substituted by at least one substituent selected from the group consisting of

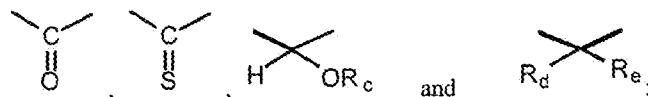
halogens, pseudohalogens CN, N₃, mercapto, NH₂, nitro, hydroxy, unsubstituted and at least monosubstituted C₁-C₆-alkyl, C₁-C₆-alkoxy, (C₁-C₆-alkyl)amino, (C₁-C₆-alkyl)thio, aryl and heterocyclyl, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, C₁-C₃-alkyl, C₁-C₃-alkoxy and hydroxy;

R² is C₁-C₁₀-alkyl substituted by at least one fluorine;

A is OR';

B is OR";

R' and R" are both hydrogen or R' and R" together form a substituent selected from the group consisting of



R_c is hydrogen or methyl;

R_d and R_e are independently hydrogen, or C₁-C₆-alkyl;

heterocyclyl is selected from the group consisting of pyridyl, pyridazinyl, pyrimidinyl, isoquinolinyl, quinolinyl, quinazolinyl, imidazolyl, pyrrolyl, furanyl, thienyl, thiazolyl, benzothiazolyl, piperidinyl, pyrrolidinyl, tetrahydrofuranyl, tetrahydropyranyl, and morpholinyl;

aryl is phenyl, naphtha-1-yl or naphtha-2-yl;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[],] or an N-oxide thereof, a hydrate thereof or a solvate thereof.

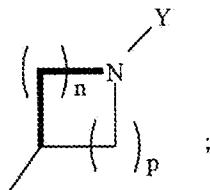
3. (currently amended) A compound according to claim 1, wherein in the formula (I)

W is N;

Q is CH₂;

R¹ is hydrogen;

X is selected from the group consisting of



and unsubstituted and at least monosubstituted C₁-C₆-alkylene-Y, the substituents of which are selected from the group consisting of CH₃, CH₂-CH₂, Cl, F, CF₃ and CH₃-O;

n + p is 3 or 4;

Y is selected from the group consisting of unsubstituted and at least monosubstituted aryl and heterocyclyl, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, C₁-C₃-alkyl, C₁-C₃-alkoxy, NH₂, (C₁-C₃-alkyl)amino, di(C₁-C₃-alkyl)amino, C₁-C₃-alkoxy-(C₁-C₃-alkylene)-, nitro, carboxy, hydroxy, hydroxy-(C₁-C₃-alkylene)-, mercapto, (C₁-C₃-alkyl)thio, mercapto-(C₁-C₃-alkylene)-, and CF₃;

T is C₁-C₁₀-alkyl substituted by at least one substituent selected from the group consisting of halogen and OR²;

R² is C₁-C₁₀-alkyl substituted by at least one fluorine;

A and B are both hydroxy;

heterocyclyl is selected from the group consisting of pyridyl, pyridazinyl, pyrimidinyl, imidazolyl, thienyl, thiazolyl, benzothiazolyl, piperidinyl, pyrrolidinyl, tetrahydrofuranyl, and morpholinyl;

aryl is phenyl;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[], or an N-oxide thereof, a hydrate thereof or a solvate thereof.

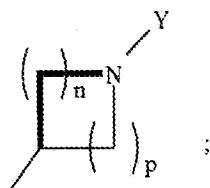
4. (currently amended) A compound according to claim 1, wherein in the formula (I)

W is N;

Q is CH₂;

R¹ is hydrogen;

X is selected from the group consisting of



and unsubstituted and at least monosubstituted C₁-C₆-alkylene-Y the substituents of which are selected from the group consisting of CH₃, CH₃-CH₂, Cl, F, CF₃ and CH₃-O;

n + p is 3 or 4;

Y is selected from the group consisting of unsubstituted and at least monosubstituted phenyl, pyridyl and thiienyl, the substituents of which are selected from the group consisting of halogens, C₁-C₃-alkyl, C₁-C₃-alkoxy, hydroxy, mercapto and CF₃;

T is fluoromethyl, trifluoromethoxymethyl or difluoromethoxymethyl;

A and B are both hydroxy;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[.]or an N-oxide thereof, a hydrate thereof or a solvate thereof.

5. (currently amended) A compound according to claim 1, selected from the group consisting of:

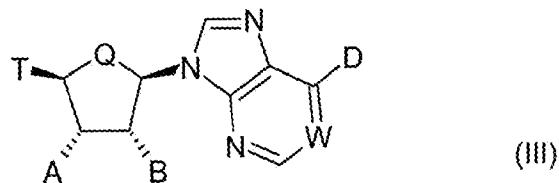
(1R,2S,3R,5S)-3-[6-[1-(3-chloro-phenyl-1-yl)-pyrrolidin-3(S)-ylamino]-purin-9-yl]-5-fluoromethyl-cyclopentane-1,2-diol;

(1R,2S,3R,5S)-3-[6-[(R)-1-(3-chloro-thiophen-2-ylmethyl)-propylamino]-purin-9-yl]-5-fluoromethyl-cyclopentane-1,2-diol; and

(1R,2S,3R,5R)-3-[6-[1-(3-chloro-phenyl-1-yl)-pyrrolidin-3(S)-ylamino]-purin-9-yl]-5-trifluoromethoxymethyl-cyclopentane-1,2-diol;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[.]or an N-oxide thereof, a hydrate thereof or a solvate thereof.

6. (currently amended) A compound according to the general formula (III)



wherein:

W is $\text{N}[[\text{,}]]$ or $\text{N} \rightarrow \text{O}$, or CH ;

Q is CH_2 or O ;

D is halogen;

T is a residue selected from the group consisting of $\text{C}_1\text{-C}_{10}$ -alkyl, $\text{C}_1\text{-C}_{10}$ -cycloalkyl, aryl- $(\text{C}_1\text{-C}_{10}$ -alkylene)- and heterocyclyl- $(\text{C}_1\text{-C}_{10}$ -alkylene), which residues are monosubstituted by halogen or OR_2 , and which residues can be optionally substituted by at least one substituent selected from the group consisting of halogens, pseudohalogens CN, N₃, mercapto, NH_2 , nitro, hydroxy, unsubstituted and at least monosubstituted $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy, $(\text{C}_1\text{-C}_6\text{-alkyl})\text{amino}$, aryl and heterocyclyl, the substituents of which are selected from the group consisting of halogens, pseudohalogens CN, N₃, $\text{C}_1\text{-C}_3$ -alkyl, $\text{C}_1\text{-C}_3$ -alkoxy and hydroxy;

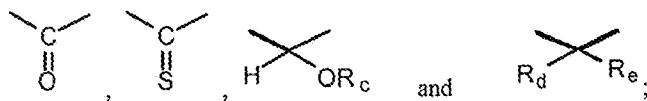
R^2 is selected from the group consisting of $\text{C}_1\text{-C}_{10}$ -alkyl substituted by at least one substituent selected from halogens, $\text{C}_1\text{-C}_6$ -alkyl- $\text{S}(\text{O})_2$ - and $(\text{C}_1\text{-C}_6\text{-alkyl})\text{thio-C}(\text{S})$ -;

A is hydrogen, $\text{C}_1\text{-C}_{10}$ -alkyl, hydroxy- $(\text{C}_1\text{-C}_{10}$ -alkylene)-, $\text{C}_1\text{-C}_{10}$ -alkoxy- $(\text{C}_1\text{-C}_{10}$ -alkylene)-, or OR' ;

B is hydrogen, $\text{C}_1\text{-C}_{10}$ -alkyl, hydroxy- $(\text{C}_1\text{-C}_{10}$ -alkylene)-, $\text{C}_1\text{-C}_{10}$ -alkoxy- $(\text{C}_1\text{-C}_{10}$ -alkylene)-, or OR'' ;

R' and R'' are independently selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_6$ -alkyl, aryl- $(\text{C}_1\text{-C}_6$ -alkylene)-, $(\text{C}_1\text{-C}_6\text{-alkyl})\text{CO}$, carbalkoxy, aryl- $(\text{C}_1\text{-C}_6$ -alkylene)- CO -, and aryl- O-CO -,

when A and B are OR' and OR'' , respectively, R' and R'' together may form a substituent selected from the group consisting of



R_C is hydrogen or $\text{C}_1\text{-C}_6$ -alkyl;

R_d and R_e are independently hydrogen, C_1 - C_{10} -alkyl, or together with the carbon atom to which they are attached may form a 1,1-cycloalkyl group;

heterocyclyl is a 4 to 10-membered, mono- or bicyclic heterocycle containing one or more heteroatoms selected from the group consisting of N, O and S;

aryl is phenyl, indan-1-yl, indan-2-yl, naphth-1-yl or naphth-2-yl;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[], or an N-oxide thereof, a hydrate thereof or a solvate thereof;

with the proviso that, in case Q is O and D is chlorine, T is not methyl monosubstituted by halogen; in case Q is O, A and B are both hydroxy and D is chlorine, T is not C_1 - C_6 -alkyl substituted by fluorine; in case Q is O, A and B are both hydroxy and D is chlorine, R^2 is not C_1 - C_6 -alkyl substituted by fluorine.

7. (currently amended) A compound according to claim 6, wherein in the formula (III)

W is N;

Q is CH_2 ;

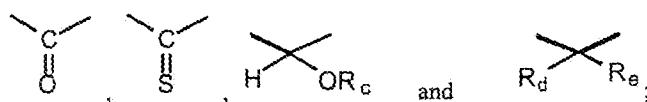
D is chlorine or fluorine;

T is fluoromethyl, trifluoromethoxymethyl, difluoromethoxymethyl, $CH_3SC(S)-O-CH_2-$ or $CH_3S(O)_2-O-CH_2-$;

A is OR' ;

B is OR'' ;

R' and R'' are hydrogen or R' and R'' together form a substituent selected from the group consisting of



R_c is hydrogen or C_1 - C_3 -alkyl;

R_d and R_e are independently hydrogen or C₁-C₃-alkyl;

or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[[],] or an N-oxide thereof, a hydrate thereof or a solvate thereof.

8. (currently amended) A compound according to claim 6, selected from the group consisting of:

6-chloro-9-((3aS,4R,6S,6aR)-6-fluoromethyl-2,2-dimethyl-tetrahydro-cyclopenta-1,3-dioxol-4-yl)-9H-purine; 6-fluoro-9-((3aS,4R,6S,6aR)-6-fluoromethyl-2,2-dimethyl-tetrahydro-cyclopenta-1,3-dioxol-4-yl)-9H-purine; 6-chloro-9-((1R,2S,3R,5R)-5-fluoro-methyl-1,2-dihydroxy-cyclopent-3-yl-)-9H-purine; 6-fluoro-9-((1R,2S,3R,5R)-5-fluoro-methyl-1,2-dihydroxy-cyclopent-3-yl-)-9H-purine; 6-chloro-9-((3aS,4R,6S,6aR)-6-trifluoromethoxymethyl-2,2-dimethyl-tetrahydro-cyclopenta-1,3-dioxol-4-yl)-9H-purine; 6-fluoro-9-((3aS,4R,6S,6aR)-6-trifluoromethoxymethyl-2,2-dimethyl-tetrahydrocyclo-penta-1,3-dioxol-4-yl)-9H-purine; 6-chloro-9-((1R,2S,3R,5R)-5-trifluoromethoxy-methyl-1,2-dihydroxy-cyclopent-3-yl-)-9H-purine and 6-fluoro-9-((1R,2S,3R,5R)-5-trifluoromethoxymethyl-1,2-dihydroxy-cyclopent-3-yl-)-9H-purine, or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[[],] or an N-oxide thereof, a hydrate thereof or a solvate thereof.

9. (currently amended) A method for the treatment of a disease chosen from the group consisting of insulin resistance, type 2 diabetes, metabolic syndrome, lipid disorders and cardiovascular disease or for providing an anti-lipolytic effect, which method comprises the administration of a physiologically active amount of a compound as defined in claim 1 or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[[],] or an N-oxide thereof, a hydrate thereof or a solvate thereof.

10. (original) The method according to claim 9 for the treatment of a disease chosen from the group consisting of insulin resistance and type 2 diabetes.

11. (currently amended) A pharmaceutical preparation comprising a pharmaceutically acceptable carrier and an effective dose of at least one compound of the formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof[[],] or an N-oxide thereof, a hydrate thereof or a solvate thereof.

12. (original) A pharmaceutical preparation according to claim 11, which pharmaceutical preparation is in the form of a pill, tablet, lacquered tablet, sugar-coated tablet, suckable tablet, granule, capsule, hard or soft gelatin capsule, aqueous, alcoholic or oily solution, syrup, emulsion or suspension, suppository, solution for injection or infusion, ointment, tincture, cream, lotion, powder, spray, transdermal therapeutic systems, nasal spray, aerosol mixture, microcapsule, implant, rod or plaster.

13. (currently amended) A method for the synthesis of a compound according to claim 1 which method comprises reacting the respective 6-chloropurine and/or 6-fluoropurine with an appropriate amine, ~~optionally followed by a functionalization of the thus obtained compound.~~

14. (currently amended) A method for the treatment of a disease chosen from the group consisting of insulin resistance, type 2 diabetes, ~~metabolic syndrome, lipid disorders and cardiovascular disease~~ or for providing an anti-lipolytic effect, which method comprises the administration of a pharmaceutical preparation comprising a pharmaceutically acceptable carrier and an effective dose of at least one compound of the formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof, a pharmaceutically acceptable prodrug thereof~~[,]~~ or an N-oxide thereof, a hydrate thereof or a solvate thereof.